REMARKS

This amendment is being made pursuant to the Final Office Action mailed July 27, 2007. Claims 1-9, 11-21 and 24-36 remain pending in the application. Claims 10, 22 and 23 have been cancelled. Reconsideration and withdrawal of the all of the outstanding rejections is most respectfully requested.

Interview Summary

The undersigned wishes to thank the Examiner for the courtesy of the telephone interview on or about Oct. 24th regarding the present application. In particular, the Teresaka reference was discussed. No agreement was reached as to the allowability of any claims.

Rejection Under 35 U.S.C. §103(a)

Rejection in View of Ogata

Claims 1-11, 13-32 and 34-36 were rejected as being obvious in view of Ogata (U.S. 6,099,969). This rejection is respectfully traversed. The undersigned has submitted an affidavit under 37 C.F.R. §1.132 from the inventor Terry L. Schneider, that in his opinion the Ogata patent does not disclose or suggest the use of shape memory alloy (SMA) material in the coating that it describes. Mr. Schneider has a Masters degree in chemistry and 27 years experience in the materials sciences field, and is an Associate Technical Fellow with The Boeing Company in Boeing's Advanced Materials Group. In view of this affidavit, reconsideration and withdrawal of the rejection based on Ogata is respectfully requested.

Rejection in View of Terasaka

Claims 1-36 were also rejected as being unpatentable over Terasaka. Initially, the Examiner will note that the independent claims 1, 14 and 26 have been amended to highlight that the SMA particles are in their austenitic state or phase. Again, this is not shown or suggested by Terasaka. As explained in detail in the previous response, wherein this rejection was traversed, Terasaka requires the particles 44 to be in their martensitic state to enable them to be "crushed" or deformed initially in the fabrication process, for the particles to perform their needed function. That function is to return to a spherical shape via the "shape memory effect" (temperature-induced martensite to austenite phase transformation) when the resin in which they are encapsulated expands due to a change in humidity and/or temperature, which causes the connection terminals to be pushed upwardly in the drawing of Figure 4. This allows the particles 44 to expand in the thickness direction of the ACF, thus maintaining electrical conductivity between the connection terminals (col. 3, lines 5-19). Again, this system would be entirely inoperable if the particles 44 were provided initially in their austenitic state. That is because the particles need to be able to thermally revert to their spherical configuration as the resin expands in order to perform their intended function of maintaining electrical conductivity between the connection terminals.

The Examiner has remarked that it is unclear as to why the particles in Terasaka would not act in opposition to an externally applied stress:

> *"Additionally, if the particles are in a compressed state and are applying a force normal to the surface of the coating, it is unclear as to why this force would not act in opposition to an*

externally applied stress, as by an impact event." (page 5, lines 7-10 of Office Action)

The purpose for providing the SMA particles in their austenitic state is that the SMA particles are able to undergo a stressed-induced phase change in response to an impact force, thereby dissipating the impact energy. If the SMA particles are used while in their martensitic state, and initially deformed to a lesser thickness as required in Terasaka, their ability to absorb energy via a stress-induced phase change from a singular, significant impact would not be possible. The SMA particles would then function largely to transmit the energy from the impact directly through the underlying material without providing any significant energy absorbing function.

It cannot be overemphasized that Terasaka makes use of a fundamentally different property of an SMA material, that being a temperature induced phase change. The present system and method is not concerned whatsoever with this property or characteristic of an SMA material, but rather with a fundamentally different property of SMA material, that being a stress-induced phase change of the SMA particles. There is no suggestion in Terasaka of using the stress-induced phase change capability of an SMA particle to significantly improve impact strength and the energy absorbing ability of a material such as a protective coating or a paint. Furthermore, there would be no benefit to utilizing the stress-induced properties of SMA particles in the resin of Terasaka. As such, it respectfully submitted that one of ordinary skill in this art, who reviewed the Terasaka reference, would certainly NOT have been motivated to explore and utilize the stress-induced properties of SMA materials in other types of materials

(e.g., paint or protective coatings) for the purpose of improving compression after impact strength of the material. Again, Terasaka simply has nothing to do with utilizing this property of SMA particles, it does NOT suggest using this property of SMA materials, and its resin further would derive no improvement or benefit from utilizing the stress-induced phase transformation property of SMA materials in its resin. Based on the totality of these considerations, the undersigned respectfully but strenuously asserts that no person of ordinary skill would have been motivated to make the presently claimed paint and coatings based on what is disclosed in Terasaka.

It is also respectfully submitted that the secondary references cited by the Examiner, when taken jointly with Terasaka, still do not render the presently pending claims obvious. There is nothing in the secondary references of Herkules or Yliopisto that would suggest combining the teachings of these references in the manner done by the Examiner. Simply because these references may discuss properties of SMA materials having both austenitic and martensitic phases, it is improper to conclude that it would have been obvious to one of ordinary skill in this art to have taken the combined teachings of Terasaka/Herkules or Terasaka/Yliopisto and constructed the claimed subject matter. This is because using SMA particles in a state other than their martensitic state would have essentially destroyed the functionality of the Terasaka. It is well established that where combining the teachings of a secondary reference with a primary reference will destroy the operability or utility of the primary reference, then combining the references is improper. In view of this, reconsideration and withdrawal of the rejections based on the Terasaka/Herkules and Terasaka/Yliopisto combinations is most respectfully requested.

Conclusion

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: October 29, 2007

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